Capitol, and make it clear that medical education, and with it medical practice, and with that the care of the people, may be safely intrusted to universities and to the American Medical Association. Let state governments deal with the subject as they please, let even the central government be misled, as it may be by zealous self-seekers and persuasive perverts, the progress that is reported is proof that in the true universities and in the representative body of the profession the course will always be toward the highest goal, the producing of the best and most useful type of men to care for sick humanity.

Statistics are said to be just as truthful as facts, and so these statistical facts are quoted in full: "The total of 166 schools of all kinds existing in the United States and Canada in June, 1904, has in eight years decreased to 117 in 1912. Homeopathic schools, of which there were twenty-two in 1900, have now fallen to ten; eclectic schools from ten to six; the physio-medical schools have entirely disappeared. The total student enrollment, which reached 28,142 in 1904, has now declined to 18,412. As the student bodies of the higher grade schools have steadily advanced in numbers, this considerable decrease has taken place precisely where in the public interest it should take place, namely, in the weaker schools. It is thus obvious that the destruction of one inefficient school does not merely result in increasing the enrollment of another; it actually and absolutely keeps a certain number of unfit men out of the profession." The "negative character"—as it is called in the report—of these facts does not detract one whit from their having a positive value in indicating the trend of events. Leaving present forces undisturbed to continue this work and making "sure that standards are genuine rather than higher" in the immediate future will accomplish what is needed quite regardless of any vagaries of any state legislation.

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ORIGINAL ARTICLES

SUMMER DIARRHEA FROM THE STANDPOINT OF THE CLINICIAN.*

By E. C. FLEISCHNER, M. D., San Francisco.

With the wonderful advances that have been consummated in prophylactic medicine during the past decade, one marvels that a more concentrated effort has not been made to limit the frightful loss of infant life due to that horrible result of heat and dirt, the summer diarrhea. As intricate and difficult as the problems may be presented by enteritis and its allied complaints to us, who are fortunate enough to live in this wonderful state, they are mild as compared to what one sees in the congested districts of our Eastern cities.

In a recent report of the Board of Health of the State of New York are some statistics that absolutely strike terror to any one reading them. In one town, and a small one, over 500 children died last year out of every thousand born before they had reached the age of one year. It has been conservatively estimated that 40 per cent. of the number died of summer complaint, and that at least 66 per cent. of these cases were preventable. In other words, 134 babies in this particular town out of every thousand born died because of heat and filth, and primarily by far, the latter cause was the essential factor. Were a similar mortality rate to occur among cattle or pigs or horses, or any commercial commodity, the Government would very rapidly take steps to lower it; and why? Because the people and newspapers would demand it. And likewise why is it not demanded in this horrible slaughter of the innocents? Simply because the people have not sufficient breadth to appreciate the economical loss entailed in this enormous death rate. One might be justly criticized for discussing the lives of these infants from a financial standpoint, were it not definitely evident that that is the one feature within which lies the crux of the whole situation.

At this point it might be well to apologize for apparently digressing from the subject with which this paper has to deal, and yet since the most potent steps in the treatment of the summer diarrheas depend upon the prevention of the condition, a few moments devoted to this phase of the subject are surely apropos. It must not be understood that no effort has been made to stamp out this terrible set of diseases. In this country, as well as in Europe, national and international societies have been formed for the prevention and reduction of infant mortality, and inasmuch as over 25% of this mortality is due to the summer diarrheas, one will understand that attention has been primarily directed toward this particular group of diseases.

A great deal has been written as to what bearing heat may have upon summer complaint, and so many arguments have been advanced to show that there is some direct connection between the two that one must take cognizance of the fact. At the same time, one is struck by the difficulty in answering the following questions:

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* Read before the Santa Clara County Medical Library Club.

1. Why are summer diarrheas relatively so infrequent among the infants of the well-to-do living in hot climates?

2. Why are they relatively so infrequent among babies who are fed upon milk that has been iced from the time of production up to the time of consumption?

Careful thought upon these two very important points leads us to the following conclusion: That high temperatures unquestionably lower the vitality of infants and render them more susceptible to disease, but that the primary effect of the heat is its influence on the increase of the bacterial content of originally dirty milk, rendering it more and more unfit for use. The question of humidity is likewise one which plays an all important part, and this probably explains why California sees fewer cases and less severe cases than one encounters in the depressing moisture of the Atlantic Coast. One cannot refrain from telling mothers of babies that they are fortunate to be Californians after he has spent a summer or two in the hot and humid East.

The intimate connection that the milk question has with the subject under discussion is so close that it is virtually impossible to discuss one without commenting upon the other, and yet there is scarcely any problem so difficult to decide as that which deals with a proper milk supply to a community. Here again, as sad as it may seem, it is the financial side of the proposition that brings us up against a bulwark of stone. The producers are interested, with few exceptions, only in the profit that can be gained; the distributer is likewise interested in this phase of the subject; and the consumer, as disgraceful as it may seem, is primarily interested in how small the cost may be. *It is not often that one finds cause or is warranted in criticizing the efforts of nature, but if ever an error were made in the natural order of things, it was when milk was so made that its dirt content could be manifold without being seen.* One has only to discuss this subject with a lay audience to realize the incredulity with which one's remarks are received, and as small as may be the extra cost of clean milk over dirty milk, those extra few cents are the barrier to the prevention of disease.

One could hardly refrain, in presenting a complete paper upon this subject, at this point from expressing himself upon the question of Pasteurization of milk. The demand for milk as a commodity is so great, and the number of tuberculous cattle is so great, that the most ardent enthusiasts on the subject of pure milk from non-tuberculous cattle realize perfectly that they can never expect the supply to equal the demand, so that we are confronted by the problem of how to have pure milk with the ordinary conditions under which market milk is produced. Until the people are willing to pay for the extra labor, and are sufficiently aroused to demand legislation governing the production of milk, it will always be produced in dirty barns, by dirty milkers from dirty cattle, because we cannot see the dirt. It devolves upon us, therefore, to devise some means whereby dirty milk can be rendered fit for consumption.

Many years ago Pasteur discovered that by raising the temperature of milk, or any bacteria-containing substance, to a certain degree, 160° Fahrenheit, for a definite length of time, twenty minutes, the pathogenic organisms are destroyed. This method of making milk fit for use has been advocated by the U. S. Public Health Service and students of hygiene everywhere, not because it is an ideal method of procedure, but because it is the best method that we have at our disposal at the present time for improving the general market supply. How has this advice been heeded? There is scarcely a large distributer of milk anywhere but who advertises that his milk is absolutely pure because it is pasteurized, and how is it pasteurized? The method of pasteurization as used in commerce is worse than useless. It is absolutely inefficient. The method used is one described as the flash method of pasteurization. The milk is raised to a temperature of 172° Fahrenheit and held there 1/10 of a second. This has been proven absolutely worthless by every laboratory that has investigated the process. It fails to kill either pathogenic or other bacteria. Here again the horrible question of finance is the demon. The apparatus for proper pasteurization is more expensive, and the time consumed and labor required are many times greater. At best proper pasteurization is bad enough for many reasons. First, it gives the farmer and his milkers a false sense of security, and they are not even ordinarily careful. Second, it changes certain chemical qualities of the milk, which is undesirable. Third, after pasteurization the bacteria grow very much more rapidly than before. Fourth, it gives the consumer a false sense of security. With these criticisms upon proper pasteurization, what can one say about the commercial flash method of pasteurization? Only that it is pernicious, malicious, harmful to the worst degree, and responsible for the death of many infants because it is the means of making a few extra dollars for the producer.

How can a proper milk supply be given to a community? In two ways. First, the Utopian method, which will only be mentioned here because, as has previously been stated, the supply can never be produced, is the certified milk, which is obtained entirely from tuberculosis-free animals and immediately iced and kept iced up to the time of consumption. Second, pasteurized milk, which has been pasteurized by the holding method and kept iced from the time of pasteurization up to the time of consumption. Were we able to succeed in having this method adopted, barring laxity in the home care of milk, summer diarrhea would be a disease which we would no longer have cause to fear. Whereas the legislators and those of us who may be classed as medical agitators are the ones who will eventually be the means of obtaining a pure milk supply, incidental to which will come condemnation and ridicule, it rests with the family physician to call to the attention of his patients the importance of the proper care of the milk in the home. This factor is far from a negligible one when one is discussing the question of etiology of summer complaint. Many a case of enteritis has been produced by careless handling at home of a

milk that was reasonably pure when it was delivered, and this particular element of the question must never be ignored in trying to discover the source of contamination.

There is no particular phase of medical sanitation that so thoroughly exemplifies our incongruity as that which allows and demands instant action and investigation whenever there is an epidemic of a milk-bearing disease such as typhoid fever, diphtheria, or scarlet fever, and yet which allows us to remain lethargic and self-satisfied when milk in a more subtle way is spreading destruction and death to thousands of helpless infants. There is surely no more disgraceful element in medicine than the enormous ravages of the summer diarrheas.

If this discussion on prophylaxis has been so length as to be wearisome, and this tirade on commercialism and filth as a cause of disease has been so unending as to have been ineffectual, it will at least be understood that it is from these two phases that the summer diarrheas can be most successfully attacked, and that nothing that may be suggested under the head of therapy can have the same value to the afflicted child as a little precaution may have had in preventing the disease. All of us realize that we are dealing with a type of illness that we can prevent if we are powerful enough to eradicate the cause. Unfortunately, as a profession we are not capable of removing an alarming condition, because in so doing we are interfering with a commercial profit gained even at the expense of infant life. It will take years and years before this all important question is sufficiently understood by the people to make them demand a food product for their infants that is not only too often a death-dealing poison, and until that time we who are over-enthusiastic on the subject will be styled as cranks and theorists who are trying to consummate the production of a pure food, when to the mind of the producer, distributer, and only too often the consumer, it is already good enough, even though every year its toll is thousands of deaths, enormous suffering, unbounded sorrow and lamentation that is felt only by the mother in the loss of her infant.

The gastro intestinal diseases of infancy have been a recognized entity since the time of Hippocrates, and from that time up to the present day much has been done in an effort to understand the etiology, and based upon the etiology innumerable efforts have been made to classify these conditions. To say the least, these classifications have been far from satisfactory. The American Pediatric Society in 1894 made a concentrated attempt to classify the intestinal disturbances of infancy, but the classification was so complex as to be useless. Recently Finkelstein of Berlin, probably the most active investigator of pediatric problems in Germany, compiled a classification and, whereas, it represents a careful and detailed understanding of the subject, it does not offer a very practical opportunity of drawing conclusions as to etiology or therapy. Perhaps for simplicity the old Heubner classification is as valuable as any, and this is based more upon the question of degree and symptoms than upon any well founded principles. He divides the gastro-intestinal disturbances into 1, the simple forms of indigestion characterized by slight diarrhea, some vomiting, loss of appetite, without any evidences of either a severe toxemia or inflammatory processes. 2, the alimentary intoxications, characterized by marked toxemia, prostration, loss of consciousness, high temperature, without much effort on the part of the body to rid itself of the toxic substances in the gastric intestinal tract by vomiting or diarrhea. 3, the true inflammations or gastro-enteritis, the most prominent symptoms of which are diarrhea, with mucus, blood and pus in the stools, with slight rise in temperature, and as a rule not much general toxemia.

Whereas, the summer diarrheas are relatively infrequent in nursing babies, and whereas when they occur they are very difficult to explain, still they are encountered frequently enough to warrant some consideration. As one is justified in diminishing the strength of the food in artificially fed babies during hot weather, so it is very advisable to suggest to nursing mothers that on excessively hot days one or even two nursings should be omitted, and the baby given a feeding of boiled water or sugar solution. It is the common experience of all of us to diminish our diets in the heat of summer, and the lesson obtained from this is very well adapted in feeding infants. We have plenty of evidence to show that the ability to digest strong milk mixtures is markedly diminished during the summer months. The following experience observed in the Nursery and Child's Hospital in New York is a very excellent example of how low fat mixtures are better tolerated in summer than high fat mixtures. During January, February and March of 1906, about one hundred babies were being fed on various dilutions of cows' milk and the gains in weight were far from satisfactory. It was observed in practically all of these cases that the caloric needs of these babies were not being met and that they were suffering from underfeeding. In April of that year there was a change in service and an opportunity was offered to alter the methods of feeding. The fats were increased in all of the cases, and during the months of April and May the results were striking. Every baby gained in weight, slept better, and showed every evidence of thriving. Then came June, and with it an unusually excessive hot spell. One would have thought that these babies had been fed some rank poison. There was an immediate loss of weight, and marked diarrhea, which only subsided when the food was weakened. An examination of the stools in all of these cases showed that the babies were wasting enormous quantities of fat. This upset could have been avoided if the stools had been carefully examined as soon as the warm weather began, because all of these babies were probably excreting an excess of fat in the stools for several days before the actual diarrhea began. It could likewise have been avoided if the general principle had been recognized of diminishing the

strength of the food simply because the weather had become unusually hot. A lesson was taught, however, that was not forgotten, and the importance of this procedure cannot be overestimated. One of the most valuable steps in avoiding trouble in hot weather is not only to diminish the strength of the food that the baby is getting, but at times to substitute for the bottle of milk a plain sugar solution in water. Another very valuable method of avoiding an intestinal upset is to insist upon the milk being boiled on those days when by virtue of the heat it is most apt to be contaminated.

Referring once more to the question of nursing babies, it might be well to discuss briefly the advisability of weaning breast-fed infants during the summer. It is far better to wean a six months' old child in April than a ten months' old child in August. By the time the hot weather comes, the six months' old child has become thoroughly accustomed to the cows' milk, and a little care will prevent much trouble. With the ten months' old child, however, one often encounters the very worst types of summer diarrhea when weaning occurs during the intense heat.

A careful résumé of the literature relative to the treatment of the summer diarrheas is striking in that it offers practically nothing new beyond a few theories that do not always work out in practice. The results that have been obtained in reducing the mortality from these diseases have not been due so much to improvement in therapy as to improvement in methods of prophylaxis.

One point in the treatment of these diseases is of so great importance as to warrant special emphasis, and that is the question of early, prompt and efficacious methods. Only too many very severe cases of gastro-enteritis have occurred because an ignorant mother has changed a simple digestive disturbance into a markedly inflammatory one by the administration of paregoric. One finds, even among the more intelligent classes, the idea fairly well rooted that in case of summer complaint it cannot be proper to cause more evacuations of the bowels by the administration of a purgative when the child is already suffering from diarrhea. One argument that is constantly heard is that starvation and purgation will cause loss of weight, notwithstanding the fact that these two methods are the only ones that we have at our disposal for eradicating the diseased process which may cause death.

Unfortunately, nothing new is being offered to you in this paper. It represents merely an effort to call attention to many old facts, and to emphasize the importance of some that are not commonly recognized. If what has been read and is to be read proves to be too didactic, then the humblest of apologies must be offered.

Mention has already been made of purgation and starvation in the treatment of the summer diarrheas, and it is to the second of these two procedures that rather lengthy and careful attention should be given. Text-books and teachers have laid so much emphasis upon the necessity of starving diarrheal cases that the method has become more of a disease than the original illness. There is probably no single therapeutic effort in the whole category of medicine that has been so thoroughly abused as this pernicious practice. If the adjectives applied seem to be extraordinarily forceful, it is only because the observation of a large number of babies suffering from starvation rather than the original disease warrants them in being so. The general principle may be laid down that it is never justifiable to starve a sick infant over 48 hours, and yet one is constantly encountering sick babies who have been ill one, two, or three weeks, and who have been fed only on barley water or albumen water because the stools remained green. The surprising factor in so many of these cases is that they exist as long as they do when they are being starved to death. It is not usually recognized, but in a large percentage of those cases in which green stools persist for days, they are an actual symptom of starvation, generally called "starvation stools." Everyone who has had much experience with infants will recall cases of newborn babies who were not gaining weight, in which cases the stools were green, and it was assumed that the mother's milk was not agreeing with the child. In 90% of these cases it is not that the milk is faulty, but that it is scarce, and the green stools are a definite representation of insufficient and not inefficient food.

What then is the result of this persistent use of barley and albumen water? It is two fold. First, it so lowers the vitality of the body that it becomes an easy prey to offending bacteria, either the original source of the disease or secondary invaders. Second, the body not having sufficient food, uses up all of the glycogen in the liver, and then must necessarily use up the excess of fat stored up in the tissues. With an insufficiency of carbohydrates the oxidation of the fats is imperfect and there results an acidosis, and later an acid intoxication with the presence of diacetic acid and acetone in the urine and the infant is a victim not only of an extraneous intoxication, but of an auto-intoxication.

The importance of urinary examination in the summer diarrheas cannot be overestimated for several reasons. In the first place, whenever urinalysis shows an excess of acid products, it is an absolute indication that the patient should receive more food, irrespective of the other symptoms. Secondly, urinalysis gives us considerable data from a prognostic standpoint, the absence of casts and albumen being a very favorable sign, and the presence of these abnormal products in excess being very unfavorable. In the third place, urinalysis will often show that the apparent intestinal disturbance is in reality a secondary affair. There is probably no more constant symptom of the colon bacillus infections of the urinary tract, especially in infants under one year, than diarrhea with mucus in the stools, accompanied by high temperature, and it is a common practice, especially in hospital work, to have babies sent in who have been treated several weeks for an intestinal disturbance, which only subsides when the genito-urinary infection is discovered and treated.

Discussing once more the question of starvation,

one naturally asks, "How can this be avoided?" Milk in any form will disagree with these cases for a long time. True, perhaps, but not so essentially an axiom as has been generally recognized. The starvation is best prevented by sugar in some form, and this is always preferably a malt sugar. It is universally agreed now that in the digestive disturbances of infancy the malt sugars play a very important role, and that they frequently produce a gain in weight when milk sugar is absolutely inefficient. For this reason maltose is the carbohydrate that is employed after twenty-four to forty-eight hours of starvation. Pure maltose is, unfortunately, so expensive as to place it beyond the range of practical use, so that one prescribes one of the prepared foods that is almost entirely malt sugar, such as malted milk. The directions that are usually given in the mild forms of summer complaint are to administer one-half to a tablespoonful of castor oil, give barley water for twenty-four hours, then malted milk, one teaspoonful to one ounce of water, and at the end of twenty-four hours substitute one ounce of boiled milk for one ounce of water in the malted milk mixture. At this point, having mentioned boiled milk, it might be well to elaborate on the value of this substance in the diarrheas. Everyone agrees that the continued use of boiled milk is not desirable, and yet where one has a child who is having three to four greenish, curd-containing stools a day without any evidence of constitutional effect, there is no one step that will clear the condition up more quickly than the administration of a cathartic and the employment of a boiled milk formula for several days.

In the more severe forms of gastro-intestinal intoxication, and gastro-enteritis, the initial steps are essentially the same. More pronounced symptoms call, however, for additional measures, and one can do no better, perhaps, than discuss the treatment of the various symptoms that may present themselves.

Vomiting. After one has assured himself that the persistent vomiting that is often encountered is not a sign of intussusception or volvulus, and is equally positive that he is not dealing with an inflammatory condition in the appendix or other abdominal organ, the stomach tube is one of the most valuable aids in infantile therapy. After the stomach has been thoroughly lavaged, the cathartic can very efficaciously be placed in the stomach through the tube and is usually retained.

Anorexia. Occasionally, either due to a complicating stomatitis, or possibly due to an aversion to food, gastro-intestinal cases will refuse nourishment in every form. There is no type of case more difficult to treat than this one and they are relatively frequent. Here again, in small babies the nasal tube, and in larger babies the stomach tube prove most valuable. Anyone who has used the nasal tube as a method of feeding can recall cases where life has been actually saved by giving nourishment in this manner, and as surprising as it may seem, the technic is most simple.

Blood and Mucus in the Stools. This symptom opens up to us the whole question of colonic and rectal irrigations, upon which one finds a very great diversity of opinion and methods. Upon one particular point, however, special emphasis must be made. The common practice of frequent irrigation of the bowel in all cases of summer diarrhea is a great mistake and unquestionably does much more harm than good. One who sees many of these cases can recall numerous examples of a constant irritation and consequent inflammation being produced and maintained by frequent and persistent irrigations. There can be no question that in cases showing an involvement of the lower bowel, that colonic washings are of value, provided that they are used with judgment and care. It is never necessary to make use of them more than twice daily. What should be used is also largely a question of opinion. There can be no doubt, however, that the chief value obtained from colonic flushing is the mechanical removal of noxious material rather than any direct antiseptic action. It is hardly logical to assume that antiseptic solutions in sufficient strength to destroy offending organisms can be used without at the same time destroying the rectal mucosa. If it is desired to use some preparation having slight antiseptic action, nothing is more serviceable or less irritating than a weak straw-colored solution of argyrol, which has been claimed by some men to have a very excellent action.

Tenesmus. There is probably no more unpleasant symptom in all the diseases of childhood than the frequent, painful small bowel movements seen when the intestinal inflammation is low down in the colon. To relieve this, nothing is more efficacious than two-ounce injections of starch solution, containing an amount of Tr. Opii proportionate to the child's age, used every four hours. External applications of heat to the rectal region will also frequently ameliorate this distressing condition.

Irritation of the Skin Around the Rectum. It may seem strange to have this very secondary symptom discussed, but whereas it has no importance as far as the life of the child is concerned, it is very important as a cause of marked discomfort. This can only be treated after determining the reaction of the stools, more apropos of which will be said a little later in discussing the therapeutic value of buttermilk. When the stools are very acid, local applications of bicarbonate of soda solution will usually check this unpleasant condition, and when the stool is alkaline, local applications of a weak buttermilk dilution, or of boric acid ointment will ameliorate it.

Loss of Body Fluids in Excessive Amounts.

Nothing is much more pitiful to see than an infant who has been sick several days with an attack of gastro-enteritis and who has every earmark of having lost a great deal of serum. With sunken eyes, sunken fontanelle, and with the skin hanging in folds all over the body, not only is he an object of pity, but he is truly an object over which to be alarmed. These cases require large amounts of saline and they require it immediately; nothing meets the requirement as quickly or as efficaciously as hypodermoclysis, and nothing is quite the life-

saver in the severe cases that this procedure is. There is always plenty of room under the skin of the abdomen or axillæ, and in the bad cases 150 c.c. can be given every six hours. Next in importance is the Murphy method of enteroclysis, with which you are all familiar. A simple apparatus for using the Murphy drip is shown here tonight. The important point is not to have the solution enter the rectum too quickly. Fifteen to twenty drops per minute are all that can be absorbed by most babies, and if it is administered more rapidly it will usually be expelled, as is the case with saline enemata that are so frequently misused in diseases of infants.

Cardiac Failure. All that has been said in the previous page on the use of hypodermoclysis can be repeated here. As to the value of drugs in cases of failing heart muscle, that is a point upon which there is considerable doubt. The question of pushing a failing heart is one of the most important in pediatrics, and in the past it has unquestionably been overdone. If the general theory of rest in the treatment of diseased organs is a correct one, there can be no doubt that many, many times the overuse of drugs does more harm than leaving things absolutely alone. If there are any therapeutic agents which are of value, they are three in number—opium, camphor and caffein, their value diminishing in the order named. It is a rather common practice to administer camphorated oil in ten minim doses hypodermatically every 2-3 hours, or caffein citrate in ¼ and 1 grain dosage every four hours, but in opium and rest lie the greatest of all heart stimulants.

A paper upon this subject would hardly be complete without some mention being made of buttermilk, and it is in this connection that the value of litmus paper must be discussed. In every case of summer diarrhea it is important to know what the reaction is of the stools. In those cases in which the invading organisms are of the putrefactive, alkali-producing variety, then buttermilk dilutions are of use in treating the cases after the initial purgation and starvation. The dilutions must at first be weak, and it is advisable to add some sugar to the milk to further the production of the lactic acid bacilli.

In the summer diarrheas, as in all other groups of diseases in medicine, each case is a law unto itself. It is only possible to lay down certain principles of treatment, realizing that they must be modified to meet the individual needs of every patient. Nothing new has been offered in this paper, essentially because there is practically nothing new to offer. In writing it an effort has been made simply to call attention to rational methods as a means of cure, and in this connection in concluding may the great danger of prolonged starvation be once more emphasized as the one grave misconception and error in our knowledge of the treatment of the summer diarrheas.

ON THE RELATION OF THE ACADEMIC MEDICAL SCHOOL TO THE MEDICAL COMMUNITY.*

By H. C. MOFFITT, M. D., San Francisco.

It is unfortunate for us all that engagements of President Wheeler prevent his being here this evening,—it is for you particularly unfortunate that I have been selected to speak in his place. We shall reach a better understanding if, at the start, it is determined what is meant by an "Academic Medical School." It is a question that has been discussed in detail by such men as R. M. Pearce, Cabot, Edsall, Huntington, Barker, Hewlett and that is, in some of its aspects, familiar to you all. For some years it has been a fact generally accepted that the work of the first two years in medicine must be in the hands of men who could devote all their time to their special departments—unhampered by the cares of practice—men who would be teachers but above all investigators, active in the advancement of medical development and knowledge. With the acceptance of this fact began the passing of the proprietary school; no institution dependent upon fees of students alone can long furnish the right men and proper equipment for the work and laboratories of the first two years. With the advances in student preparation and the standards of the first years in medicine, with the tremendous widening of the whole medical horizon, it soon became apparent that instruction in the so-called scientific branches was developing faster than the teaching of the clinical years, sometimes developing even at the expense of the clinical years. The gap widened between "scientific" and clinical departments, and it became necessary to find men with more time to devote to the development of the clinical years. It was realized that, as soon as practical, clinical teachers must be paid for part or for all their time, that the practicing physician could no longer cope unaided with the situation, that the last years of medicine needed the special teacher, organizer, investigator even more than the first.

In the recent plan adopted by the Regents of the University of California it is recognized that men of different types will be needed in the development of the medical school of the future. The practitioner with advantages of experience, with catholic spirit developed through touch with all kinds of men can not be spared. It is necessary, however, to have, as well, heads of departments, assistants, teachers, investigators who will be paid by the University and who can give part or all of their time to the work of the school. It is the expressed opinion of the Regents and of the President of the University that to develop to best advantage all departments of medicine must be kept closely in touch and, in the near future, must be brought together in San Francisco. In order to get the right kind of men it is realized by the University that it is not enough to pay them for their services but that a suitable place must be provided for them in which to work. A hospital is to the clinical years what laboratories are to the first

* Read at the General Meeting of the San Francisco County Medical Society, September 10, 1912.